



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

H.P.

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/756,797	01/13/2004	Michael D.G. Steigerwald	FRM-04201	1531
26339 7590 09/27/2007 MUIRHEAD AND SATURNELLI, LLC 200 FRIBERG PARKWAY, SUITE 1001 WESTBOROUGH, MA 01581			EXAMINER VANORE, DAVID A	
			ART UNIT 2881	PAPER NUMBER
			MAIL DATE 09/27/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/756,797

Applicant(s)

STEIGERWALD ET AL.

Examiner

David A. Vanore

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,5-14,24-27,38-40,44,45 and 47-64 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-14,24-27,38-40,44,45 and 47-64 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 9/13/07.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments with respect to claims 1, 5-14, 24-27, 38-40, 44-45 and 47-64 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 5-14, 24-27, 38-40, 44-45 and 47-64 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Todokoro et al. (USPN 6,847,038).
4. Regarding claims 1, 38, 47, and 60, Todokoro et al. teaches a device and method for electron detection where a beam generator (Item 1) generates an electron beam, an objective lens (Item 17) focuses a beam on an object (Item 12), a first detector (Item 42) and a second detector (Item 18) positioned along an optical axis for detecting electrons such that the first detector is object side and the second detector is generator side, and a diaphragm (Item 50) which includes at least one opposing field grid (Item 39a) for selecting electrons according to energy where the step of selecting includes applying a potential to at least one of the grids (39a, 39c, or 38) such that

Art Unit: 2881

electrons which pass a first detector are not detected by a second detector (Note the paths of secondary electrons in Fig. 21).

5. Regarding claims 5 and 6 and 48-49, Todokoro et al. teaches a scanning means comprising two elements per plane for directing an electron beam towards an object (Items 15 and 16).

6. Regarding claims 7 and 50, the opposing field grid (50) and second detector (Item 18) are positioned extra axially as shown in Fig. 10.

7. Regarding claims 8 and 51, Todokoro et al. teaches a deflection device (Item 33A and 33B) for directing an electron beam from and toward an optical axis.

8. Regarding claims 9 and 52, Todokoro et al. teaches that the deflection means (Item 33A and 33B) is a magnetic field generating deflection means.

9. Regarding claims 10 and 53, Todokoro et al. shows that the deflector (Item 33A and 33B) is between the object and the beam generator.

10. Regarding claims 11-12 and 54-55, Todokoro et al. teaches that first and second deflectors (Item 15 and 16) are for two-dimensional scanning of the electron beam, and therefore deflect the beam out of and into an optical axis. Third deflector (Item 14) is a condenser lens which causes the beam to be condensed or deflected into the beam axis.

11. Regarding claims 13-14 and 56, Todokoro et al. teaches that the device comprises two detectors (Items 18 and 42), supplying the additional detection region.

12. Regarding claims 24-25 and 57, Todokoro et al. teaches the two required detectors (Items 18 and 42) where each detector comprises an opposing field grid

Art Unit: 2881

where grid 31b is associated with detector 18 and grid 37b is associated with detector 42.

13. Regarding claims 26 and 58, Todokoro et al. further features and electron energy controlling means (Item 9) which accelerates the electrons of the electron beam to specified energy by having a predetermined potential (Item 22) applied thereto.

14. Regarding claims 27 and 59, Todokoro et al. teaches that backscattered or reflected electrons are projected onto object (Item 29) which are detected by the second detector, note Fig. 10.

15. Regarding claims 39 and 61, the energy filter (Item 50) embodiment of the Todokoro et al. shown for example at Col. 9 Lines 35-50 demonstrates that the reflected electrons scattered off the object (12) are selected based on their energy

16. Regarding claims 40 and 62, the energy filter embodiment of the Todokoro et al. shown for example in Fig. 21 and Col. 9 Lines 35-50 demonstrates that the secondary electrons scattered off the object (12) are selected based on their energy.

17. Regarding claims 44 and 63, Todokoro et al. teaches that when the beam is scanned on the object under test in two dimensions, where this scanning comprises deflecting the beam from and toward an optical axis. Also, noting the beam path in Fig. 10, deflectors 33a and 33b deflect the electron beam to and from the axis.

18. Regarding claims 45 and 64, the reflected and secondary electrons have different phase spaces because of their differing energies as set forth at the specification of the instant application at page 10, paragraph 1. As set forth at Col. 9 Lines 30-50, energy filter 50 selects secondary and reflected electrons based on their

Art Unit: 2881


energy. Therefore, the Todokoro et al. patent teaches the selection according to phase space.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Vanore whose telephone number is (571) 272-2483. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
David A Vanore  
Primary Examiner  
Art Unit 2881

dav